



Massachusetts Department of Environmental Protection Source Water Assessment and Protection (SWAP) Report for West Street Elementary School

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- Inventory land uses within the recharge areas of all public water supply sources;
- Assess the susceptibility of drinking water sources to contamination from these land uses; and
- Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

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Table 1: Public Water System (PWS) Information

| | |
|----------------------|-------------------------------|
| <i>PWS Name</i> | West Street Elementary School |
| <i>PWS Address</i> | West Street |
| <i>City/Town</i> | Granby, Massachusetts |
| <i>PWS ID Number</i> | 1111014 |
| <i>Local Contact</i> | Mr. Kenneth Scully |
| <i>Phone Number</i> | 413-467-3181 |

| <i>Well Name</i> | <i>Source ID#</i> | <i>Zone I (in feet)</i> | <i>IWPA (in feet)</i> | <i>Source Susceptibility</i> |
|------------------|-------------------|-----------------------------|---------------------------|----------------------------------|
| Well #1 | 1111014-01G | 143 | 443 | High |

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

Description of the Water System

The Granby West Street Elementary School (the school) is located near the center of Town on West Street. The total school student and staff population is approximately 350 people per day. The school is served by one potable supply well (Well #1) which is located immediately behind the building and is a 6-inch diameter, 125-foot deep, bedrock well. There is no municipal wastewater sewer system in Granby; therefore, the school and surrounding facilities are served by on-site septic disposal.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

Geologic mapping in the area indicates overburden deposits of less than 50 feet of sand with some amount of till over bedrock at the school. The surficial deposits in the area are sand and gravel that was likely deposited during the recession of the glaciers some 14,000 to 18,000 years ago. The bedrock in the area is mapped as gneiss of the Belchertown Complex.

The Zone I is the area immediately around the wellhead where only activities associated with supplying water or non-threatening activities are allowed. The Interim Wellhead Protection Area (IWPA) is a larger area that potentially contributes water to the well. The IWPA is only an interim protection area until an actual Zone II contribution area is delineated; the actual area of contribution to the wellhead may be larger or smaller than the IWPA. The well has a Zone I protective radius of 193 feet and an IWPA protective radius of 492 feet. These protective radii were calculated based on the metered water use from the two highest months of use. Please refer to the attached map that shows the Zone I and IWPA. The Zone I area for the well is not conforming to current DEP requirements. The Zone I area for Well #1 includes part of the school and some parking. The IWPA includes all school facilities (except the leachfield), parking, residential homes, UST fuel oil tank and components of septic systems.

There is no evidence of a continuous, protective confining layer in the vicinity of the well. Wells drilled in these conditions are considered highly vulnerable to potential contamination from activities on the ground surface because there is no significant hydrogeologic barrier, such as clay, to prevent surface contamination from migrating into the aquifer. The water from the well does not require treatment prior to distribution. You may request additional information regarding the quality of the water, from the local contact listed in Table 1.

Table 2: Table of Activities within the Water Supply Protection Areas

| Potential Sources of Contaminants | Zone I | IWPA | Threat | Comments |
|---|--------|------|----------|---|
| Fuel Oil Storage | No | Yes | High | UST w/leak detection at school |
| Floor Drains in Boiler Rooms | Yes | Yes | Moderate | Consult with UIC program regarding compliance |
| Athletic fields | No | Yes | Moderate | Continue prohibiting the use of pesticides/fertilizers on school fields. |
| School facilities, parking and infiltration catchbasins | Yes | Yes | Moderate | Limit road deicing usage, use BMPs for household hazardous materials and monitor parking areas and control stormwater |
| Low density residential and hobby farming/animals | No | Yes | Moderate | Septic systems, household hazardous materials, home heating fuel and manure management |
| Transportation Corridor | No | Yes | Moderate | West Street |
| Septic systems components | No | Yes | Moderate | Residential leachfields are in the IWPA |
| Transformers | No | Both | Low | Monitor transformers for potential leaks |

-For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Please refer to the following section, attached maps of the Zone I and IWPA and Table 2 for additional assessment information.

2. Discussion of Land Uses in the Protection Areas

During the assessment, several land uses and activities were identified within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Non-conforming Zone I,**
2. **Underground storage tanks,**
3. **Floor drains in boiler rooms,**
4. **School facilities and athletic fields, and**
5. **Transportation corridors and parking.**

There are several activities within the Zone I and IWPA that pose a significant threat to the water supply. The overall ranking of susceptibility to contamination for the well is high based on at least one high threat activity within the protection areas. Please refer to Table 2.

1. Non-conforming Zone I – The water supplier does not own or control the entire Zone I area. Systems not meeting DEP Zone I requirements for ownership or control, or non-conforming activities within Zone I must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Zone I Recommendations:

- ✓ Prohibit any additional activities within Zone I and where feasible remove non-conforming activities within the Zone I areas.
- ✓ Use Best Management Practices for handling treatment chemicals and vehicles used to access the area.
- ✓ Monitor all fuel oil deliveries and parking areas.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ The well is located within a pit and the casing should be extended above grade with a secure watertight cap, sanitary seal around the casing, and appropriate grading to prevent ponding of water near the well.

2. Underground fuel oil storage – There is one fuel oil UST located within the IWPA. If managed improperly, fuel oil tanks can be a potential source of contamination due to leaks or spills of the materials they store.

Recommendation:

- ✓ Any modifications to the tank must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs and USTs.
- ✓ Monitor all activities associated with the fuel oil especially delivery.
- ✓ Have spill containment/absorbent materials available on-site.

3. Floor Drain in Boiler Room – There are floor drains in the boiler room, that are assumed to discharge to the septic system. However, the discharge point is not known. Title 5 prohibits disposal of any wastewater other than sanitary waste to a septic system and the UIC regulations prohibit dry

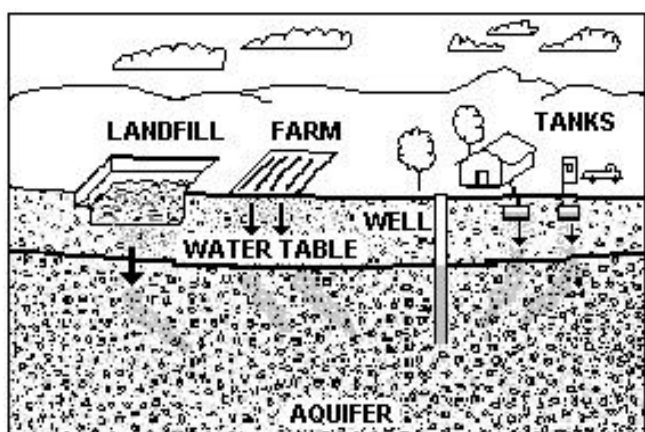


Figure 1: Example of how a well could become contaminated by different land uses and activities.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Regional Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

wells in areas where hazardous materials or petroleum may enter the floor drain. The floor drain must be protected to prevent boiler blow down, oil or other prohibited discharges through the floor drain.

Recommendations:

- ✓ Be sure that the floor drains are in compliance with Department Regulations (refer to Industrial Floor Drain Brochure attached).
 - Contact the UIC coordinator for the Western Region Office of the Department (Rick Larson 413-755-2207 or Tony Zaharias 413-755-2122).
- ✓ Containment to prevent accidental releases to the floor drain may be an option. Contact the regional DEP contact for the UIC program listed above. Oil lines from the tank to the boiler should be sleeved so that any leaks would drain back to the tank or minimal oil would leak to the boiler room. Prepare a policy and a plan for maintenance operations, especially when oil filters are changed. We recommend that you require your boiler maintenance contractor use containment, protect the drain and have absorbent materials on hand to prevent accidental leaks while conducting routine maintenance. The contractor should be responsible for the off-site disposal of any boiler blow down generated during maintenance.
- ✓ Consider determining the discharge location of the drains. Seal all cracks in the floor and the floor drain if it cannot be adequately protected to prevent a prohibited discharge.

4. School facilities and athletic fields – Elementary schools generally use only household type hazardous materials. There are state and federal controls on some activities and products used at schools to promote “healthy schools”. All of the school’s facilities are located within the Zone I or IWPA of the well. Potential exists for contamination of the well by onsite use of cleaning materials, petroleum from lawn equipment, fertilizers, and pesticides. Storm drains in the parking areas at the school drain directly into the ground.

Recommendations:

- ✓ Continue the use of Best Management Practices for all activities at the school and at the athletic fields across the street. Consider drought resistant grasses and/or low release nutrient fertilizers in the IWPA, as required.
- ✓ Investigate Integrated Pest Management and Best Management Practices within the IWPA as necessary.
- ✓ Use secondary containment as necessary for any petroleum products kept for maintenance and lawn care equipment.
- ✓ Use Best Management Practices for handling treatment chemicals and vehicles used to access the area. Do not use or store pesticides, fertilizers or deicing materials within Zone I.
- ✓ Review the handling of laboratory wastes to determine if a tight tank is appropriate.
- ✓ Review your emergency response plan regarding accidental releases within the area. Ensuring that emergency responders in town are aware of the locations of your resource areas.
- ✓ Refer to the Massachusetts Public Health Associations Healthy Schools website online at http://www.mphaweb.org/pol_schools.html for additional information.

5. Residential Land Use – There are two residences within the IWPA protection area. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. There is also some hobby farming or animals within the IWPA. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems leach to the ground. If septic systems fail or are not properly maintained they could be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of

contamination.

- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground and streams. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automobile leaks, maintenance, washing, or accidents. Visit the Nonpoint Source pollution web site for additional information and assistance at <http://www.state.ma.us/dep/brp/wm/nonpoint.htm>.

Residential Land Use Recommendations:

- V Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- V Work with hobby farmers by supplying them with information about protecting their own wells and the public water supply by encouraging the use of BMPs. Refer to <http://www.state.ma.us/dep/brp/dws/dwspubs.htm> and <http://www.state.ma.us/dep/consumer/animal.htm#dwqual> for additional resources.

6. Transportation corridor – West Street along with the access and parking areas for the facility are located within the Zone I and IWPA. Accidents and normal use and maintenance of roads pose a potential threat to water quality. Catch basins transport stormwater from roadways and adjacent properties to the ground, streams, rivers or reservoir. As flowing stormwater travels, it picks up de-icing materials, petroleum chemicals and other debris on roads and contaminants from streets and lawns. Common potential contaminants in stormwater originate from automotive leaks, automobile maintenance and car washing, accidental spills as well as waste from wildlife and pets. Parking lot storm runoff is discharged through infiltration catchbasins.

Recommendations:

- V Prepare an Emergency Response Plan that includes coordination between the emergency responders to be sure they area aware of the location of your well.
- V Monitor the sodium levels in the water. If the levels begin to increase, consider contacting the local highway department regarding potentially reducing salt use area near the well.

7. Hazardous Materials Storage and Use – Any household hazardous materials such as paint, thinners, petroleum products, etc. should be kept in containment and used with caution. Cleaning and disposal should not be through the septic system. Spill kits and signs designating areas of storage should be available. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be allowed to enter a catch basin, septic system or floor drain leading directly to the ground. Review the attached fact sheet for additional information regarding the thresholds for triggering a very small quantity hazardous waste generator.

Hazardous Materials Storage and Use Recommendations:

- V Continue current management of hazardous materials on site and consider relocation of the well to minimize any potential threat from an accidental release at the site.
- V Continue to use BMPs for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will further reduce the well’s susceptibility to contamination. The DEP commends the effort shown in current protection practices of not using pesticides and fertilizers in the Zone I. The school district should comment to the various town boards regarding developments that may impact the school’s wells.

Please review and adopt the key recommendations listed above and as follows:

Priority Recommendations:

- V Protect the wellhead from surface water runoff and monitor activities around the well.

Zone I and IWPA:

- V Prohibit any new non-water supply activities from Zone I.

- V Conduct regular inspections of the Zone I and IWPA.
- V Monitor activities and if there is evidence of increased activity or access, consider relocating the well.
- V Post drinking water supply signs in key location such as along the access road and in the parking areas but away from the well.
- V Provide information to staff and pertinent school organizations about the potential hazards of household chemicals, lawn care chemicals and fertilizers.
- V Use Best Management Practices (BMPs) for the use of petroleum products, lawn care products, pesticides and household hazardous waste.

Training and Education:

- V Incorporate groundwater education into school curriculum (K-6 curricula available; contact DEP for copies).
- V Staff should be instructed on the proper disposal of spent chemicals. Include custodial staff, teachers, groundskeepers, and certified operator.

Facilities Management:

- V Staff should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, and certified operator. In order to participate in a Community Hazardous Waste Pick-up day, the school must be registered as a Very Small Quantity Generator. The school is currently not registered as a generator of hazardous waste or waste oil. Review the enclosed document "A SUMMARY OF REQUIREMENTS FOR SMALL QUANTITY GENERATORS OF HAZARDOUS WASTE" and consider registering to participate.
- V Contact the UIC coordinator to evaluate compliance for the floor drains in the boiler room and waste disposal.

Planning:

- V Work with local officials to develop an Aquifer Protection District Bylaw that includes the school well's IWPA and to assist you in continued protection of the water supply.
- V Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- V Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts.
- V Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". If funds are available, the Department posts a new Request for Response (RFR), grant application form. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" on the MA DEP website at <http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf>.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area
- Recommended Source Protection Measures Fact Sheet
- UIC/Industrial Floor Drain
- Very Small Quantity Generator (VSQG) information